BAY AREA 2004 OZONE STRATEGY

DRAFT CONTROL MEASURE DESCRIPTIONS

AUGUST 2004

INTRODUCTION

The Bay Area Air Quality Management District (Air District), in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), is preparing the Draft Bay Area 2004 Ozone Strategy. The Ozone Strategy is a roadmap showing how the San Francisco Bay Area will achieve compliance with State and national ambient air quality standards for ozone as expeditiously as practicable and how it will maintain those standards over the next decade and beyond.

A critical component of the Ozone Strategy is the control strategy. The control strategy consists of a set of control measures that will be implemented by the Air District, MTC and ABAG, which, together with programs to address sources subject to State and federal control, will further reduce air pollutant emissions from a wide range of sources in the region.

The Bay Area 2004 Ozone Strategy will continue to reduce emissions that contribute to ozone formation to assure that the region attains and maintains compliance with State and national health-based ozone standards. The attached materials describe the draft control measures proposed for the 2004 Ozone Strategy.

The draft control measures, and the 2004 Ozone Strategy of which they are a part, are works in progress. These draft control measures were written by Air District, MTC and ABAG staff, and reflect the efforts of many participants in a series of eight meetings of the Air District's Ozone Working Group, as well as input from a broad range of stakeholder groups, public agencies and members of the public. Participants in Ozone Working Group meetings have included representatives of the U.S. Environmental Protection Agency, the California Air Resources Board, downwind air districts, cities and counties, environmental and community groups, industry and business groups, and others.

BACKGROUND

Ozone is the principal component of smog. It is a highly reactive gas that can damage the tissues of the lungs and respiratory tract. High concentrations of ozone irritate the nose, throat and respiratory system and constrict the airways. Ozone also can aggravate other respiratory conditions such as asthma, bronchitis and emphysema. Repeated exposure to high ozone levels can make people more susceptible to respiratory infection and lung inflammation, and permanently damage lung tissue. Children, seniors and people with respiratory illnesses are especially sensitive to ozone's effects. Even healthy adults, working or exercising outdoors during high ozone levels, can be affected.

Ozone is not emitted directly from pollution sources. Instead, ozone is formed in the atmosphere through complex chemical reactions between hydrocarbons ("reactive organic gases" or ROG) and nitrogen oxides, in the presence of sunlight. Ozone levels are usually highest on hot, windless summer afternoons, especially in inland valleys. The

main sources of hydrocarbons are motor vehicles and evaporation of solvents, fuels and other petroleum products. The main sources of nitrogen oxides are motor vehicles and combustion.

Ozone is a regional pollutant. Emissions of hydrocarbons and nitrogen oxides throughout the Bay Area contribute to ozone formation, and emissions in one part of the region can impact air quality miles away. Therefore, efforts to reduce ozone levels focus on reducing emissions of hydrocarbons and nitrogen oxides throughout the region.

While some locations in the Bay Area still experience high ozone levels occasionally, primarily in inland valley areas, ozone conditions in the region have improved significantly over the years. Ozone levels – as measured by peak concentrations and by the number of days over State or national standards – continue to trend downward as a result of aggressive programs by the Air District, MTC and our regional, State and federal partners.

In April 2004 the U.S. Environmental Protection Agency (EPA) determined that the region had attained the national one-hour ozone standard.[1] This represents great progress in improving public health conditions for Bay Area residents. The region has not yet attained the more stringent State ozone standard, however, and also must reduce pollution transported to downwind regions. In addition, EPA recently determined that the Bay Area has not attained the new national eight-hour ozone standard. Therefore, the region must continue its long-term progress in reducing ozone levels.

STATE AND NATIONAL HEALTH BASED STANDARDS

The State and national governments have established ambient air quality standards for ground level ozone that are intended to protect human health from adverse effects. Air quality standards define the maximum amount of a pollutant that can be present in outdoor air without harm to public health. National ambient air quality standards are set by the U.S. Environmental Protection Agency (EPA), while State standards are set by the California Air Resources Board (ARB). The national one-hour ambient air quality standard for ozone is 0.12 parts per million (ppm). The California one-hour ozone standard is more stringent than the national standard, and is set at 0.09 ppm.

The Air District operates a network of air quality monitoring stations throughout the region to constantly monitor air quality conditions. Data from the air monitoring stations allows the Air District to determine whether the region meets State and national ambient air quality standards and to track progress in improving air quality.

An exceedance of the national or State one-hour standard occurs if the average ozone concentration measured over a one hour period at any Air District monitoring station is higher than the standard. In recent years the national one-hour ozone standard has been exceeded 1 – 2 days per year,[2] while the State standard has been exceeded an average of 16 days per year.

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[1] EPA's finding of attainment does not mean the Bay Area has been redesignated as an attainment area for the national one-hour ozone standard. The region must submit a Redesignation Request to EPA in order to become an attainment area.

[2] An exceedance of the standard is different than a violation of the standard. An exceedance is a day with a maximum ozone concentration that exceeds the standard. An exceedance does not necessarily cause a violation. A violation of the national one-hour ozone standard occurs when four or more exceedances are recorded at a single monitoring site during a three year period.

EPA recently began implementing a new national ozone standard. The national standard is 0.08 ppm averaged over eight hours. The new eight-hour standard is considered to be more health protective because it protects against health effects that occur with longer exposure to lower ozone concentrations. EPA has adopted an implementation rule under which the eight-hour standard will replace the one-hour standard in June 2005. The national eight-hour ozone standard will not be addressed in the 2004 Ozone Strategy, however. Any Bay Area actions needed to address national eight-hour ozone planning requirements will be included in future revisions to the Ozone Strategy.

PURPOSE OF THE 2004 OZONE STRATEGY

The 2004 Ozone Strategy will address both State and national air quality planning requirements. Previously the Air District prepared separate plans for State and national ozone standards. The State plans were called "Clean Air Plans" and the national plans were called "Ozone Attainment Plans." The most recent plan for the State ozone standard was the 2000 Clean Air Plan (or "2000 CAP"). The most recent plan for the national standard was the 2001 Ozone Attainment Plan. With the 2004 Ozone Strategy the Air District will combine in a single document all of our efforts related to assuring that the Bay Area meets health-based one-hour ozone standards. However, the requirements for meeting the State standard and the national standard remain separate and distinct, and this single document does not in any way merge the two standards or the requirements under the respective State or national laws and regulations.

State Planning Requirements

Because the region violates the State one-hour ozone standard, the Bay Area is considered a nonattainment area for the State standard. The California Clean Air Act (CCAA) requires regions that do not meet the State ozone standard to prepare plans for attaining the standard and to update these plans every three years. These plans must include estimates of current and future emissions of the pollutants that form ozone and a control strategy that includes "all feasible measures" to reduce these emissions. The plans must also include measures to reduce transport of air pollutants to downwind regions.

The first Bay Area plan for the State ozone standard was the 1991 Clean Air Plan. Subsequently, the Clean Air Plan was updated and revised in 1994, 1997, and 2000. Each of these triennial updates proposed additional measures to reduce emissions from a wide range of sources, including industrial and commercial facilities, motor vehicles, and "area sources" (scattered, individually small sources such as water heaters or paints and varnishes).

The 2004 Ozone Strategy will include a section that provides the latest triennial update to the Bay Area strategy to achieve the State ozone standard, including new control measures. The draft control measures (summarized below and set forth in more detail in the attachments) are proposed to be included in the State portion of the 2004 Ozone Strategy to satisfy State ozone planning requirements.

National Planning Requirements

Until recently, the Bay Area also violated the national one-hour ozone standard. However, in April 2004, EPA made a finding that the Bay Area had attained the national one-hour

ozone standard, based on low ozone levels in 2001, 2002 and 2003. EPA's finding of attainment does not mean that the region has been formally redesignated as an attainment area. In order to be redesignated, the region must submit a Redesignation Request that explains how we satisfy all applicable requirements to become an attainment area. The region also must submit a Maintenance Plan that demonstrates that we will continue to meet the standard in the future. The 2004 Ozone Strategy will include a Redesignation Request and a Maintenance Plan for the national one-hour ozone standard.

Because the Bay Area has attained the national one-hour ozone standard and existing programs provide continuing emission reduction benefits sufficient to meet national ozone planning requirements, the draft control measures described below are not proposed to be included in the California State Implementation Plan (SIP) for the national one-hour ozone standard.

The 2004 Ozone Strategy will also address transportation conformity procedures. The transportation conformity process is intended to assure that regional transportation plans and programs do not hinder progress towards attainment of air quality standards. As required by federal regulations, the Bay Area has adopted transportation conformity procedures that are included in the SIP. In 2004 EPA issued guidance on substituting transportation control measures (TCMs) in a SIP. In order to use these procedures in the Bay Area, the procedures must first be included in the SIP. The Air District, MTC and ABAG are not currently proposing TCM substitution, but seek to incorporate the procedures into the SIP in case substitution is considered in the future. The proposed TCM substitution procedures are not a required element of the Redesignation Request or the Maintenance Plan. They will be included in the 2004 Ozone Strategy because it is more efficient to coordinate various SIP submittals when possible.

Other Elements

The 2004 Ozone Strategy will also include several other elements that are not required to attain and maintain the State and national one-hour ozone standards, but are related to ozone control efforts and are being included to help the public understand the relationship between ozone planning and other environmental programs. The Air District implements numerous programs that are related in some way to ozone planning, or are otherwise of interest to the Air District and the public. The 2004 Ozone Strategy will discuss these related topics of interest, including:

- Public involvement processes related to the 2004 Ozone Strategy;
- Fine particulate matter (PM), its sources and health effects, and programs to reduce emissions of fine PM;
- Global warming, ARB programs to reduce greenhouse gas emissions from motor vehicles, and potential benefits of ozone control measures on reducing greenhouse gas emissions;
- Regional and local benefits of ozone control measures;
- The environmental review process for the 2004 Ozone Strategy.

CONTROL STRATEGY

The control strategy outlines a program for further reducing ozone precursor emissions in order to reduce ozone levels in the Bay Area and reduce transport to downwind regions. It is a central element of the State portion of the 2004 Ozone Strategy.

The control strategy for the 2004 Ozone Strategy is to implement all feasible measures on an expeditious schedule in order to reduce emissions of ozone precursors. This is consistent with California Clean Air Act (CCAA) requirements in the Health and Safety Code and pollutant transport mitigation requirements in the California Code of Regulations. The following discussion summarizes the process for identifying and evaluating potential control measures and summarizes the draft control strategy, which includes stationary source measures, mobile sources measures and transportation control measures. The full control measure descriptions are attached.

Control Measure and Further Study Measure Development Under the CCAA

To satisfy State requirements under the CCAA that the region adopt all feasible measures to reduce ozone precursor emissions, the Air District investigated a wide range of potential control measure ideas from many sources. Air District staff sought ideas for new sources to control, as well as ways to strengthen existing rules and programs. To identify potential control measures, the Air District:

- Participated in discussions as part of the Rule Development Managers subcommittee to the CAPCOA Engineering Managers Committee to develop a statewide all feasible measures list.
- Participated with staff from ARB, Yolo-Solano APCD, Sacramento Metropolitan AQMD, and San Joaquin Valley Unified APCD on a rule comparison project.
- Reviewed suggestions developed by consultants for Sacramento Metropolitan AQMD.
- Investigated rules in other air districts throughout California.
- Investigated control measures and programs from plans in other districts and agencies, both within and outside the state.
- Considered comments and suggestions from the Ozone Working Group.
- Considered comments and suggestions from community meetings.
- Considered comments and suggestions from Air District Board members, Advisory Council members and staff.

MTC took the lead in evaluating transportation control measures, and MTC and the Air District worked together in revising the TCMs.

In total, Air District staff considered 390 control measure suggestions, not including transportation control measure suggestions evaluated by MTC. In evaluating a control measure, staff considered a variety of factors, including:

- Technological feasibility of proposed controls;
- Emission inventory of the source category and total likely emission reductions from proposed controls;
- Cost-effectiveness in dollars per ton of emissions reduced;
- Enforceability, including whether emission reductions are real, quantifiable, permanent, enforceable, and surplus;
- Rate (and timing) of emissions reductions;
- Public acceptability, including interests and concerns of community members;
- Pollutant reduced (volatile organic compounds, nitrogen oxides or both);
- Any potential adverse environmental impacts;
- Socioeconomic impacts.

In some cases, not all of these elements could be analyzed from readily available information. For example, emissions data for some source categories or the emissions reduction potential of some control measure may be uncertain. In these cases, further study may be warranted if the other aspects of a suggested control, such as public acceptability and absence of adverse environmental impacts, appear positive. These measures are discussed further below, under Further Study Measures.

Of the 390 control measure suggestions considered, not including the transportation control measure suggestions evaluated by MTC, Air District staff made preliminary determinations and presented them for discussion at three Ozone Working Group meetings in January and March 2004. Finally, based on input from the Ozone Working Group and members of the public, and on further evaluation by Air District staff, the potential control measures were distilled down to the measures summarized below and described more fully in the attachments.

Addressing Transport Requirements

The California Clean Air Act, as reflected in the California Health and Safety Code, includes planning requirements for regions that violate State air quality standards. State law and ARB regulations also require regions that transport pollution to other regions to mitigate such transport. ARB's Transport Mitigation Regulation includes State planning requirements for all nonattainment areas. To summarize the Transport Mitigation Requirements, the Air District must:

1. Adopt and implement all feasible measures.
2. Adopt and implement best available retrofit control technology (BARCT) for stationary sources.
3. Adopt a no net increase permitting program for sources above 10 tons per year.
4. Include measures to attain the standard in specified downwind regions.

The requirements to 1) adopt all feasible measures, and 2) implement BARCT on all existing stationary sources are necessary for the Bay Area to meet both attainment planning and transport mitigation requirements. These requirements are addressed in the control strategy as well as through District rule development and permitting processes. With respect to the 3) no net increase requirement, the Air District is scheduled to consider adoption of a 10 ton/year no net increase requirement for ozone precursors in District Regulation 2, Rule 2: New Source Review by December 31, 2004. Regarding 4) the control strategy addresses the requirement to include measures sufficient to attain the state ozone standard in specified transport areas through the proposal to adopt all feasible measures. As adoption of all feasible measures represents the most stringent control strategy that can be accomplished, this requirement is met with the approval of each triennial plan.

Stationary Source Measures

The following table outlines the stationary and area source measures proposed for the State portion of the Draft 2004 Ozone Strategy. Most of these control measures represent strengthening of existing Air District requirements, and would be adopted by amending existing Air District rules. SS-3, High Emitting Spray Booths would be adopted as a new Air District rule. More complete descriptions of the draft stationary source control measures are included in the attachments.

Draft Stationary and Area Source Control Measures

CM #	BAAQMD Reg - Rule	Source Category	Description	Estimated ROG Reduction tons/day	Estimated NOx Reduction tons/day
Industrial – Commercial Processes					
SS-1	8-45	Auto Refinishing	Reduce VOC limits for some coating categories	0.7	N/A**
SS-2	8-20	Graphic Arts Operations	Reduce VOC limits for flexographic ink and clean up solvent	0.15	N/A**
SS-3		High Emitting Spray Booths	Require additional controls on spray booths that emit > 20 tons ROG/yr	0.5	N/A**
SS-4	8-50	Polyester Resin Operations	Reduce allowable monomer content for some types of polyester resins	0.3	N/A**
SS-5	8-32	Wood Coating Operations	Reduce VOC limits for some coating categories	0.68	N/A**
Petroleum Products Production and Distribution					
SS-6	12-11	Flares*	Reduce flaring or set emissions limits for flares	TBD***	TBD***
SS-7	8-33, 39	Gasoline Bulk Terminals and Plants	Require automatic shutoff and backpressure monitors, set more stringent leak, emission standards	0.14	N/A**
SS-8	8-44, 46	Marine Loading Operations	Control additional cargoes, set more stringent leak standards and/or control housekeeping emissions	0.7 – 1.0	N/A**
SS-9	8-5	Organic Liquid Storage	Tighten existing requirements and/or control lower vapor pressure liquids	0.27 – 0.44	N/A**
SS-10	8-28	Pressure Relief Devices	Reduce ROG emissions from PRD's	TBD***	N/A**
SS-11	8-8	Wastewater Systems	Control emissions from wastewater collection systems	2.1	N/A**
Combustion Processes					
SS-12	9-7	Boilers Less than 10 MM Btu	Extend existing limits to smaller boilers and/or set a more stringent standard	N/A**	0.5 – 1.0
SS-13	9-6, 7	Large Water Heaters and Small Boilers	Require new, small boilers and large water heaters to meet NOx limits	N/A**	0.39
SS-14	9-9	Stationary Gas Turbines	Implement BARCT NO_x limits on existing turbines	N/A**	1.2
Education Programs					
SS-15		Energy Conservation	Educate government, industry and the public in energy efficient choices	unknown	unknown

* SS-6, Flares would be adopted as an amendment to Air District Rule 12-11. The rule currently requires monitoring of refinery flare emissions, while the proposal in SS-6 is to require control of refinery flare emissions.

** N/A – Except for SS-6 Flares, SS-1 through SS-11 will result in ROG emission reductions, and there are no anticipated NOx emission reductions for these measures. SS-12 through SS-14 will result in NOx emission reductions, and there are no anticipated ROG emission reductions for these measures. SS-6 may reduce both ROG and NOx emissions.

*** TBD – emissions reductions to be determined.

Mobile Source Programs

The term mobile source refers to on-road and off-road equipment including automobiles, trucks, buses, construction equipment, farm equipment, and off-road vehicles. Mobile sources also include non-road sources such as ships, boats, aircraft, locomotives, and lawn and garden equipment. Mobile sources are by far the largest sources of ozone precursors in the Bay Area, so reducing mobile source emissions is crucial to our ability to attain and maintain compliance with air quality standards.

State and National Mobile Source Programs

State and national programs play a critical role in reducing air pollutant emissions from mobile sources. Mobile source emissions are regulated by establishing equipment emission standards and by regulating the fuel used in the equipment. The federal CAA allows California to set motor vehicle emission standards that are specific to the State. The California standards cover motor vehicles (including cars, motorcycles, and trucks), heavy industrial and construction equipment, off-highway vehicles, and lawn, garden and other utility engines. In California, these mobile sources are regulated primarily by ARB.

Mobile source emissions are also controlled through fuel requirements. ARB is authorized to adopt standards and regulations to achieve the maximum degree of emission reduction possible from vehicular and other mobile sources in order to attain the State air quality standards at the earliest practicable date. ARB adopts fuel specifications for motor vehicle fuels – gasoline, diesel and alternative fuels.

Motor vehicle emission control systems are regulated through in-use performance standards to ensure that the systems continue to operate properly. California has had an inspection and maintenance (I&M) program since 1984 to test vehicles for compliance with the standards. The California Bureau of Automotive Repair (BAR) implements the I&M program. In 2002, State law directed BAR to implement an Enhanced Smog Check Program in the urbanized regions of the San Francisco Bay Area. The program went into full effect in October 2003, and requires the use of a dynamometer to test the vehicle's emissions while in operation. In addition, the pass/fail cut points for emissions are more stringent for enhanced smog check areas and certain vehicles that tend to have higher emissions are directed to Test-Only stations. Overall, ARB's motor vehicle control program and the I&M program provide substantial emission reductions.

The federal CAA prohibits all states, including California, from establishing emission standards for aircraft engines, ship engines, new locomotive engines and new engines less than 175 horsepower used in construction or farm equipment. Only EPA has the authority to regulate emissions from these sources.

Air District Mobile Source Programs

The Air District does not have the authority to regulate mobile sources, but reduces mobile source emissions by providing grants or incentives to encourage the use of cleaner vehicles and fuels. The Transportation Fund for Clean Air (TFCA) is an Air District grant program that funds mobile source and transportation control measures implemented by local public agencies. Mobile source measures funded through the TFCA program include purchase or lease of clean fuel vehicles, as well as engine retrofits and repowers. Another TFCA-funded program, the Vehicle Buy Back Program, accelerates the voluntary

retirement of older, high emitting vehicles from the region's roadways by providing financial incentives to scrap them.

The Carl Moyer Program provides incentives that cover the incremental cost of cleaner heavy-duty engines with a primary focus of reducing NO_x emissions. Eligible projects include cleaner on-road, off-road, marine, locomotive and stationary agricultural pump engines, and other off-road equipment. The Air District also has grant programs for low emission school buses and heavy-duty diesel PM_{10} filter retrofits.

The Air District also reduces mobile source emissions through the Spare the Air (STA) program. The STA program is an intermittent, voluntary control program in which the Air District encourages Bay Area residents, businesses and public agencies to reduce or postpone polluting activity on days when weather conditions are conducive to forming high ozone levels. STA advisories include recommendations to avoid discretionary driving, to use transit, carpooling, walking or cycling instead of driving alone, to link trips to avoid cold starts, and to postpone refueling of vehicles.

To complement State and federal regulations and Air District incentive and STA programs, the State portion of the 2004 Ozone Strategy will include additional control measures that further reduce emissions from on-road and off-road mobile sources. These control measures encourage the retirement of older, more-polluting equipment and the introduction of new, less-polluting equipment, or encourage operational changes (e.g. reduced idling) to reduce emissions. The measures would be implemented mainly through incentive programs and through development and promotion of model ordinances for cities and counties. The following table summarizes the draft mobile source control measures, including their proposed dates of adoption and estimates of the emission reductions they would achieve.[3] More detailed information on the control measures is available in the attachments.

Draft Mobile Source Control Measures

Measure #	Title	Estimated ROG Reduction (tpd)	Estimated NOx Reduction (tpd)	Estimated PM Reduction (tpd)
MS-1	Diesel Equipment Idling Model Ordinance	0.13	1.96	0.08
MS-2	Green Contracting Model Ordinance	unknown	unknown	unknown
MS-3	Low-Emission Vehicle Incentives	0.03	0.06	0.01
MS-4	Vehicle Buy-Back Program	0.30	0.15	0.05
Total		**0.46**	**2.17**	**0.14**

State Transportation Control Measures

Motor vehicles are the largest source of ozone precursors in the Bay Area, and reducing these emissions is essential to regional efforts to attain the State ozone standard and

[3] While the focus of the Ozone Strategy is on reducing emissions of ozone precursors, many of the measures will also reduce emissions of fine particulate matter, and this additional benefit is noted as well.

reduce transport. Motor vehicle emissions have dropped substantially over the years due to State and national regulations on vehicles and fuels, and motor vehicle emissions are expected to continue to decrease in the future as the vehicle fleet becomes cleaner. Transportation control measures (TCMs) play a critical role in complementing State and national regulatory efforts by reducing motor vehicle use.[4] TCMs also help achieve other goals, including improved mobility and reduced congestion.

State TCM Development in the Bay Area

The Bay Area has extensive experience with developing and implementing TCMs. The first regional plan prepared pursuant to the CCAA, the 1991 Clean Air Plan, included 23 TCMs to meet State planning requirements (State TCMs). Plan updates in 1994 and 1997 included thorough revisions to the State TCMs. The regional strategy for the State ozone standard now contains 19 State TCMs that cover the full spectrum of transportation strategies, including:

- Bus transit
- Rail transit
- Ferry service
- Carpooling and vanpooling
- Bicycle and pedestrian enhancements
- Land use programs
- Pricing measures
- Traffic management
- Employer programs and youth programs
- Public education and episodic measures

The Air District, MTC and other regional and local partners have worked together over the years to develop one of the most comprehensive TCM plans in California to address the State ozone standard. This effort has continued during the preparation of the 2004 Ozone Strategy.

The control measure review and development process included a thorough review of potential TCM enhancements. MTC and Air District staff considered a wide range of new or enhanced TCM programs, including:

- New initiatives deriving from the Smart Growth Strategy/Regional Livability Footprint Project and MTC's Transportation 2030 process
- Input from the Ozone Working Group and community meetings
- Input from cities, counties and other pubic agencies
- Input from environmental, business and community groups
- Suggestions from staff and Advisory Council members
- Review of TCM programs in other regions

All of the State TCMs have been revised to reflect this input. The resulting draft State TCMs take into consideration current fiscal and political conditions but at the same time

[4] TCMs are distinguished from mobile source measures in that mobile source measures reduce vehicle *emission rates*, while TCMs reduce vehicle *use* by reducing vehicle trips and/or vehicle miles traveled.

set an ambitious course for the future, particularly as additional revenues become available and land use changes occur over the long term.

State TCMs in the Control Strategy

The draft TCMs proposed for the State portion of the 2004 Ozone Strategy are summarized in the following table and are described more fully in the attachments. The TCMs are divided into Phases 1 and 2 to reflect near-term and long-term implementation steps and benefits. MTC estimated emission reductions for each phase.

TCMs often have overlapping, complementary effects. For example, measures to enhance transit service, encourage development near transit, and improve bicycle and pedestrian safety all interact to make transit, walking and cycling more viable transportation options. Assumptions must be made about individual projects and programs when calculating emission reductions, but it is difficult to capture these synergistic effects.

TCMs have multiple benefits beyond air quality. In addition to reducing motor vehicle emissions, the projects and programs identified in the State TCMs will improve mobility, especially for people with limited access to automobiles, and reduce traffic congestion. Other benefits include reduced gasoline consumption, reduced emissions of greenhouse gases, and reduced water pollution from urban runoff.

Draft State Transportation Control Measures

#	Title	Phase 1: 2006		Phase 2: 2015	
		ROG Reductions (tons/day)	*NO_x Reductions (tons/day)*	*ROG Reductions (tons/day)*	*NO_x Reductions (tons/day)*
TCM 1	Voluntary Employer Based Trip Reduction Programs	0.53	0.57	0.23	0.22
TCM 3	Improve Local and Areawide Bus Service	0.50	1.41	0.16	0.14
TCM 4	Improve Regional Rail Service	0.23	0.21	0.08	0.06
TCM 5	Improve Access to Rail and Ferries	0.17	0.15	0.06	0.05
TCM 6	Improve Interregional Rail Service	N/A*	N/A*	0.05	0.05
TCM 7	Improve Ferry Service	N/A*	N/A*	0.06	0.06
TCM 8	Construct Carpool/Express Bus Lanes on Freeways	N/A*	N/A*	0.62	0.65
TCM 9	Improve Bicycle Access and Facilities	0.30	0.25	0.59	0.43
TCM 10	Youth Transportation	0.03	0.03	0.02	0.01
TCM 11	Install Freeway Traffic Management System	0.24-0.31	0.10-(0.31)	0.12-0.16	(0.03)-(0.25)
TCM 12	Arterial Management Measures	0.06-0.12	0.06-0.11	0.23	0.25
TCM 13	Transit Use Incentives	0.04-0.20	0.04-0.19	0.02-0.08	0.01-0.07
TCM 14	Carpool and Vanpool Services and Incentives	0.01	0.01	0.01	0.01
TCM 15	Local Land Use Planning and Development Strategies	0.09	0.14	TBD**	TBD**
TCM 16	Public Education/Intermittent Control Measures	1.65***	1.27***	TBD**	TBD**
TCM 17	Conduct Demonstration Projects	0.01-0.04	0.01-0.03	TBD**	TBD**
TCM 18	Transportation Pricing Reform	0.95	0.82	1.40	0.99
TCM 19	Improve Pedestrian Access and Facilities	0.04-0.18	0.02-0.10	0.08-0.17	0.04-0.08
TCM 20	Promote Traffic Calming	NC****	NC****	NC****	NC****

* N/A – No new service is anticipated between 2004 and 2006 for TCM 6 and TCM 7; therefore, no additional emission reductions are expected in Phase 1. Emission reductions for TCM 8 were only calculated for 2015, reflecting full implementation of MTC's HOV Master Plan.
** TBD – Long-term effectiveness of TCM 15, TCM 16 and TCM 17 is unknown. Emission reductions are not currently estimated for Phase 2.
*** TCM 16 emissions reductions are calculated for the Spare the Air program. STA is an episodic measure, so the emission reductions are assumed to occur only on STA days.
**** NC – Traffic calming is an important support program for other TCMs, particularly bike/ped programs, but it is uncertain how much additional emission reductions can be attributed specifically to traffic calming projects. Therefore, no additional reductions are claimed for TCM 20.

National Transportation Control Measures

No changes are proposed to the current list of TCMs in the SIP at this time.

Further Study Measures

Further study measures are measures for which insufficient information was available during the development of the control strategy to allow the agencies to commit to them as

control measures. A measure may be proposed for further study because of a lack of emissions data on the source targeted, because the cost effectiveness of control may be questionable, or because technology to control the source may not have been adequately demonstrated. The State portion of the 2004 Ozone Strategy commits the Air District to continue to evaluate the further study measures. However, the Ozone Strategy does not commit the Air District to continue evaluation of a measure if it is determined to be technically infeasible, not cost-effective, or inappropriate for any other reason.

Further study measures will be evaluated as expeditiously as practicable. If the results of the study indicate that the measures are viable control measures, they will be considered for implementation as regulatory amendments or implemented programmatically (on a schedule to be determined). The following table summarizes the draft further study measures. Descriptions of the further study measures are provided in the attachments.

Draft Further Study Measures

FS #	Further Study Measure (existing Reg and Rule, if any)
FS 1	Adhesives and Sealants (Reg 8-51)
FS 2	Architectural Coatings (Reg 8-3)
FS 3	Commercial Charbroilers
FS 4	Composting Operations
FS 5	Food Product Manufacturing and Processing
FS 6	Livestock Waste
FS 7	Limitations on Solvents Based on Relative Reactivity
FS 8	Solvent Cleaning and Degreasing
FS 9	Emissions from Cooling Towers
FS 10	Refinery Wastewater Treatment Systems (Reg 8-8)
FS 11	Vacuum Trucks
FS 12	Valves and Flanges (Reg 8-18)
FS 13	Wastewater from Coke Cutting Operations
FS 14	Cumulative Risk
FS 15	NO_x Reductions from Refinery Boilers (Reg 9-10)
FS 16	Stationary Internal Combustion Engines (Reg 9-8)
FS 17	Encourage Use of Biodiesel Fuel
FS 18	Mitigation Fee for Federal Sources
FS 19	Indirect Source Mitigation Program
FS 20	Free Transit on Spare the Air Days
FS 21	Episodic Measures

NEXT STEPS

The Air District, MTC and ABAG are inviting public comment on the draft control measures. The agencies will be conducting community meetings, Ozone Working Group meetings and other outreach efforts to describe the draft control measures to interested parties and to solicit public input on the draft measures. The agencies also will continue preparation of the Draft 2004 Ozone Strategy. A complete Draft 2004 Ozone Strategy will be released for public review following the conclusion of the outreach on these draft control measure descriptions, most likely in late October or early November 2004.